Is the allegation that there is a mathematical error in Quran's allocation of inheritance.

The allegation is that when a man dies leaving three daughters, one wife, one mother and one father the shares Quran gives exceeds 1 and hence there is a mathematical error.

The shares according to Quran are:

2/3 daughters, 1/6 mother, 1/6 father, 1/8 wife

If these fractions are added , the sum is 1.25 instead of 1 which is a mistake. No inheritance would exist to distribute among these sated above candidates.

Some have suggested that the denominators of these shares should be equalized and new shares should be created accordingly (the so-called AVL method). When it is equalized the denominator (for example when we make 24 denominator for each) we get 16/24, 4/24, 4/24, 3/24.

Some suggest that we then neglect the denominator and solve for X in 16X + 4X + 4X + 3X= Total Inheritance. If inheritance is 27 golds, for example, then three daughters would get 16, mother would get 4, father would get 4, and wife would get 3. This may be a pragmatic solution, we are kind of changing the Quranic formula a some what arbitrarily. For example, we are giving three daughters 16 whereas they should get 18 because the verse clearly and literally states that three daughters should get 2/3 of the total inheritance. 2/3 of 27 should have been 18. Above all, the Quran is giving shares with respect to the whole inheritance and to analyze the shares with respect to each other has no linguistic Quranic back ground

Answer

This allegation is based on some misconceptions. These are of two types , Religious and Mathematical.

First one should deal with the Mathematical type of Problem.

1st Preliminary

It is a simple case of splitting or dividing a given number into 4 parts in a Ratio of 4-Terms or a 4-Term Ratio.

If p is any Positive Real Number , $p > 0$, and there is a given Ratio .

Let the number be p. It is to be divided into three parts in the ratio a : b : c : d

Where a,b,c,d are Rational Numbers in the simplest form of p/q >0 , q=/=0

Let the parts be ,u, x, y and z. Then,v+ x + y + z = p ..... (i)

and u = ak , x = bk, y =ck, z = dk..... (ii)

Substituting in (i), ak + bk + ck+dk = p

$\Longrightarrow$ k(a + b + c+d) = p

Therefore, k = p/(a+b+c+d)

Where (a+b+c+d) = m

Where m>0, m is a Rational Positive , m>0.

The above solution is valid in the following cases.

i) 0 < m < 1

ii) m = 1

iii) 1 < m

Where m > 0 is an Integer.

Therefore,

u = (ap)/(a+b+c+d)

x = (bp)/(a+b+c+d)

y = (cp)/(a+b+c+d)

z = (dp)/(a+b+c+d)

. The shares according to Quran are:

2/3 daughters, 1/6 mother, 1/6 father, 1/8 wife

The Quranic Ratios are as follow:

1/8 : 1/6 : 1/6 : 2/3

If these terms are added the sum is greater than 0 , hence under the given conditions solution does exist.

There is no Mathematical Condition that the sum must be equal to 1.

The Sum is 1.25 > 1 which not a Mathematical problem. Solution of inheritance does exist to distribute to all these people, since the above formulae are applicable .

2nd Preliminary

The LCM 24 is not stated in the Sacred Text , rather is a part of Mathematical Solution. As not prescribed in the Sacred Text , LCM may change according to the problem of inheritance.

The Fallacies.

1) In ancient times it was thought that no Mathematical solution exists in the case he Sum of the terms of the Ratio is greater than 1 . But Mathematical Solutions do exist in such cases.

2) The LCM is 24 is neither stated in Sacred Qur'a:n nor prescribed in Sacred Qur'a:n. So if in a solution the LCM is not 24 , this does not imply that this is a violation of Divine Text or a number prescribed in Divine Text. Hence it is strictly in accordance to the prescribed fractions.

3) It is a fallacy to assume that the LCM must be equal to 24 in all cases . It may be different depending on the condition whether the Sum of the Prescribed Fraction is greater than 1 or equal to 1 or less than 1 and greater than 0 .

4) There is no change in the fractions used as terms of a 4 term Ratio. The rest is the solution of Mathematics and the Solution is not the Part of the Sacred Text.

5) Denominator is not the issue. 24 is not stated in the Divine Text , rather it is found by Mathematics when the sum of terms of the 4 term Ratio is not greater than 1.

6) Consider the problem by another method.

If p is any number stated above, and x is any variable then:- x(1/8)+x(1/6)+x(1/6)+x(2/3) =p. This is Algebraic Method , and correct approach , regardless of any answer/ answers.

7) The objection that the denominator is neglected is invalid and incorrect since:- a) It is not prescribed in the Divine Text . b) It is not in the solution , when the Sum of the terms of 4-term Ratio is greater than 1 . c) The If the Sum of the

Terms of the Ratio is less than 1 or equal to 1, the number 24 may be obtained as LCM during the Mathematical solution and not as a prescribed number. So there is no Error nether in Mathematical Solution nor In Sacred Text , if the number 24 is not obtained in the Mathematical Solution. d) Neglecting the denominator 24 , if it would be an Error the it would be a Mathematical Error and not an Error of Divine Text.

3rd Preliminary:-

It may be noted that in ancient times when Mathematics was not developed ,it might have been considered as an error. But its solutions exist and this proves that there is no Mathematical Error. Since if a Mathematical Solution exists this proves with Mathematical Certainty that there is no Mathematical Error.

When this problem occurred Companions of Prophet did tried to find some Mathematical Method to solve the problem when the Sum of Terms of Ratio is greater than 1.The did neither say that there is no Mathematical Solution Possible nor say that there is no Mathematical Solution which exists.

This is just like the case of the solution equation :-

((x)^2) + 1 = 0

When this equation was attempted to be solved , it was found that there is no solution in Real Numbers. But Mathematicians did not claim that there is no Mathematical Solution of this Equation. Instead the find Imaginary Numbers and then Complex Numbers , thus finding a not only just Solution but also finding Imaginary and Complex Numbers.

Similarly when the solution value of (2)^(1\2) was not a Rational Number , Mathematicians did not say that root of the number did not exist , instead the fine Irrational Numbers .

These two examples are sufficient to prove with Mathematical Certainty that Researches in the Subject of Mathematics finds solutions of different problems which were not known prior to these researches.

Forth Preliminary

Any solution using the numbers or terms of Ratio /Ratios given in a problem as initial values is the solution of the values given in the Problem , even if the values

are changed in different steps of solution using different Mathematical Methods of the Solution.

The changes in values which occur in different steps of the Mathematical Solutions do not change the solution of the initial terms .Inspite of all changes in the values during the process of solution or in the solution , the result is of the values in the original problem or original question

Fifth Preliminary

As from the perspective of religion (2/3) 0f any number x does not mean (2/3)x but it means

(2/3)(1/27) x in respect to other terms of Ratio.

So in the case when the terms of the Ratio is 1, then the actual formula is (2/3) (1/24)x.

It is not the literal meaning but is the sensibility and the understanding of the Consensus of S:ah:a:bah RD: .

That is the reason that the literalists face a problem , when the interpret 2/3 as a product of any number x and the fraction 2/3.etc.

It is certainly not the case and Hermeneutic Interpretation is required to find the intended meaning of the Divine Text. This means a prescribed fraction say 2/3 is in respective to the other terms of the Ratio and not as a product of (2/3) and any Posative Real Number p > 0.

An other Method:-

Another Method

If a given Real number p>0 is to be divided in four parts in the ratio

a1/b1 : a2/b2 : a3/b3 : a4/b4, where the sum of 4 term Ratio is >1 then one may proceed as follow:

Dividing each term of Ratio be the Sum of all the terms of the Ratio , we get an equivalent ratio.

Let s = a1/b1 + a2/b2 + a3/b3+ a4/b4

(a1/b1)/s : (a2/b2)/s : (a3/b3)/s : (a4/b4) /s

Also

Instead of taking the above :

16X + 4X + 4X + 3X is regardless of the answer or final results.

Instead of the above equation we may take the following method.

The method should be as for 4 ratio

Let divide p in 4-term ratio. Ratio is a : b : c : d,

a+b+c+d > 0

Where a,b,c,d > 0

a,b,c,d is a positive Rational Number Q

Let K be a constant such that::-

K (a + b + c + d) = p .....(1)

K = p/(a+b+c+d) .....(2)

Let

Ka +Kb +Kc +Kd =p .....(A)

A=Ka = a(p/(a+b+c+d))

B=Kb = b(p/(a+b+c+d))

C=Kc = c(p/(a+b+c+d))

D=Kd = d(p/(a+b+c+d))

In present case let

a = 1/8, b =1/6 . c = 1/6 , d = 2/3

So K(1/8)+K(1/6) + K(1/6)+K(2/3) =p

Further solution is left as an exececise for those who are interested.

This is a valid Mathematical Method , to divide a number p>0 into 4 parts in a Ratio of 4-Terms.

As the valid Mathematical Method exists there is no Mathematical Error.

This is the correct approach regardless of the answer which may be same as from an incorrect approach.

Conclusion

It is possible to solve the given Terms in Fractions as Terms of Ratio in Mathematic and Sensibility of S:h:a:abah RD:.